



# P500

PRESSURE SENSOR

## Description

The P500 incorporates Kavlico's 4th generation ceramic capacitive sense element with the latest state of the art proprietary ASIC. Available in brass or stainless steel housings, this multi-purpose sensor is rugged by design. Highly reliable, the P500 is ideal for measuring a broad range of process media including hydrocarbon based fluids, air, and gases. The P500 package has a built-in Metri-Pack 150 series sealed electrical connector and is available with popular pressure connection thread options. The sensor is offered with seal materials suitable for diverse applications. Standard pressure ranges are available in PSI or Bar.



## Features

- Small Size (3/4" Hex)
- External Hex for Easy Installation
- Linear Amplified Output
- Temperature Compensated
- Superior Long-Term Stability
- Low Power Consumption
- Minimum Life Expectancy: Ten Million Cycles

## Applications

- Compressors
- Process Controls
- Instruments & Test Equipment
- Sterilizers
- Air Pressure
- Oil & Fuel Pressure
- Coolant Pressure
- Agricultural Equipment
- CNG & Natural Gas Engines

## SPECIFICATIONS

<b>Pressure Ranges</b>	0 - 1 up to 0 - 70 Bar, 0 - 15 up to 0 - 1000 PSI
<b>Electrical Connection</b>	Packard Electric Metri-Pack 150 Series
<b>Pressure Connection</b>	1/4-18 NPT (external), 1/8-27 NPT (external) - for more options see how to order
<b>Housing Material</b>	Brass (up to 300 psi) and stainless steel (above 300 psi)
<b>Output Voltage</b>	0.5 to 4.5 Vdc

## TECHNICAL SPECIFICATIONS

### Pressure Ranges

<b>Bar A, S or G</b>	0 - 1	0 - 1.6	0 - 2.5	0 - 4	0 - 6	0 - 10	0 - 16	0 - 25	0 - 40	0 - 50	0 - 70	
<b>PSI A, S or G</b>	0 - 15	0 - 20	0 - 30	0 - 50	0 - 75	0 - 100	0 - 150	0 - 200	0 - 300	0 - 500	0 - 750	0 - 1000

For custom pressure ranges consult Kavlico Pressure Sensors.

## Physical

<b>Durability/Service Life</b>	10 million full pressure cycles (minimum)
<b>Proof Pressure</b>	3X FS Pressure (upto 14 Bar / 200 PSI) 2X FS Pressure (above 14 Bar / 200 PSI)
<b>Burst Pressure</b>	1500 PSI (upto 24 Bar / 350 PSI) 2500 PSI (above 24 Bar / 350 PSI)
<b>Humidity</b>	93 +/- 3% RH
<b>Vibration</b>	10 g's peak to peak sine (10 - 2000 Hz)
<b>Shock</b>	75 g's, 1/2 Sine Wave
<b>Drop Test</b>	1 meter drop on concrete as per SAE J1455
<b>Weight</b>	< 50 gm
<b>Ingress Protection</b>	IP67

## Performance

<b>Linearity Error</b>	$\leq \pm 0.5\%$ of span
<b>Total Error Band</b>	$\pm 1.5\%$ of span ( $0 \leq T \leq 85\text{ C}^\circ$ ) $\pm 2.0\%$ of span ( $T < 0\text{ C}^\circ, T < 85\text{ C}^\circ$ )
<b>Stability Coefficient</b>	$\pm 0.3\%$ of Full span over 1 year
<b>Operating Temperature</b>	-40 C° to 125 C° (Seal material dependent. See Ordering Options)
<b>Storage Temperature</b>	-40 C° to 125 C° (Seal material dependent. See Ordering Options)

## Electrical

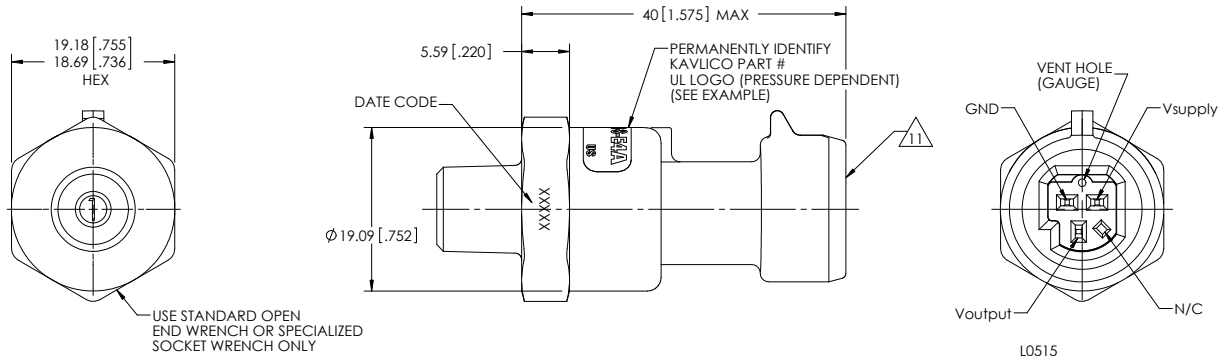
<b>Supply Voltage</b>	5.0 Vdc +/- 0.5
<b>Output Voltage</b>	0.5 to 4.5 Vdc
<b>Supply Current</b>	$\leq 5\text{ mA}$
<b>Output Impedance</b>	$\leq 100\ \Omega$
<b>Output load</b>	$\geq 10\text{ K}\Omega$
<b>Output response time</b>	$\leq 2\text{ ms}$ to 63 % of final output voltage with step change in input pressure
<b>Overvoltage protection</b>	36 Vdc
<b>Reverse Voltage</b>	-36 Vdc
<b>Short Circuit protected</b>	Output to supply, Output to Ground: Indefinite
<b>Isolation Voltage</b>	$R \geq 100\text{ M}\Omega$ , 500 Vdc / 1 min
<b>Warmup time</b>	3 mSec Max.
<b>EMC</b>	Meets ISO 7637-3, ISO 11452-4, ISO 11452-2, CISPR 25, MIL-STD 461 E
<b>ESD</b>	IEC 1000-4.2 (8kV contact, 15kV air), ISO 10605 (8kV contact, 25kV air)



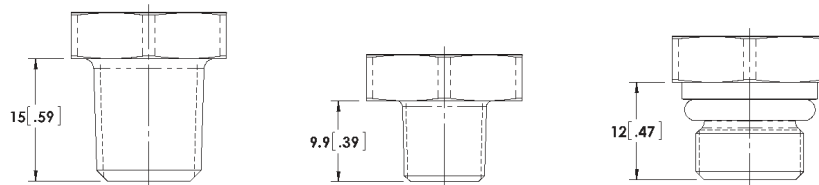
# DIMENSIONS

Dimensions in mm [Inch]

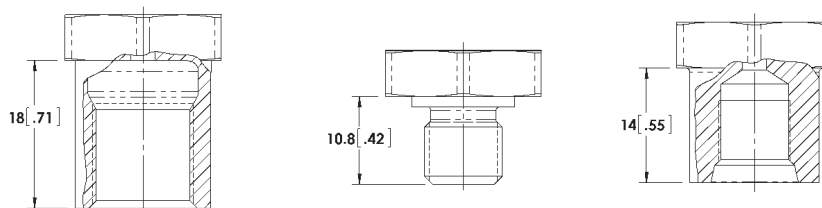
## Pressure Sensor with Electrical Connection



## Pressure Connections and Recommended Installation Torque



Name	1/4 - 18 NPT	1/8 - 27 NPT	Stud End DIN 3852-B-G1/4
Thread	External	External	External
Torque	25 Nm	20 Nm	20 Nm



Name	Tapped Hole DIN 3852-Y-G1/4	3/8-24 UNF-2A PER SAE J 1926/2	3/8-24 UNF-2B PER SAE J 1926/1
Thread	Internal	External	Internal
Torque	15 Nm	22 Nm	22 Nm



# ORDERING OPTIONS

Example: P500-16B-A-E1-A

P500 Sensor, 0 - 16 Bar Absolute, Fluorosilicone Seal Material, 1/4 - 18 NPT Pressure Connection, with Mating Connector

**Family** P500 - 16B - A - E 1 A

**P500**

**Pressure Ranges**

<b>1B:</b> 0 – 1 Bar	<b>15:</b> 0 – 15 PSI
<b>1.6B:</b> 0 – 1.6 Bar	<b>20:</b> 0 – 20 PSI
<b>2.5B:</b> 0 – 2.5 Bar	<b>30:</b> 0 – 30 PSI
<b>4B:</b> 0 – 4 Bar	<b>50:</b> 0 – 50 PSI
<b>6B:</b> 0 – 6 Bar	<b>75:</b> 0 – 75 PSI
<b>10B:</b> 0 – 10 Bar	<b>100:</b> 0 – 100 PSI
<b>16B:</b> 0 – 16 Bar	<b>150:</b> 0 – 150 PSI
<b>25B:</b> 0 – 25 Bar	<b>200:</b> 0 – 200 PSI
<b>40B:</b> 0 – 40 Bar	<b>300:</b> 0 – 300 PSI
<b>50B:</b> 0 – 50 Bar	<b>500:</b> 0 – 500 PSI
<b>70B:</b> 0 – 70 Bar	<b>750:</b> 0 – 750 PSI
	<b>1000:</b> 0 – 1000PSI

**Reference**

**A:** Absolute  
**G:** Gage  
**S:** Sealed Gage (Referenced to 14.7 PSIA)

**Seal Material**

**D:** Fluorocarbon / Viton (-25° to +125°C)  
**E:** Fluorosilicone (-40° to 125°C)  
**F:** Ethylene Propylene (-30° to 120°C)

**Pressure Connection (Port)**

**1:** 1/4 - 18 NPT (External Threads)  
**4:** 1/8 - 27 NPT (External Threads)  
**5:** Stud End DIN 3852-B-G 1/4 (External Threads)  
**6:** Tapped Hole DIN 3852-Y-G 1/4 (Internal Threads)  
**9:** 3/8 - 24 UNF-2A Per SAE J1926/2 (External Threads)  
**10:** 3/8 - 24 UNF-2B Per SAE J1926/1 (Internal Threads)

**Built-in Electrical Connection**

**A:** With Mating Connector, w/12", 18 AWG Leads  
**C:** Without Mating Connector



# AGENCY APPROVALS & CERTIFICATIONS



EN 61326-1, 2006  
IEC 61000-4-2, 2001  
IEC 61000-4-3, 2006  
IEC 61000-4-8, 2001



2002/95/EC RoHS Directive



File # SA10552

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